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Agricultural Memorandum No 598

Time available for subsoiling after a moderately dry summer

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A moderately dry summer is defined as one in which the soil moisture deficit on August 31st is between 2 and 4 inches.

It is assumed that the conditions will permit efficient subsoiling until the soil reaches capacity. This implies that the depth of subsoiling is the lowest level of the dry soil zone.

Details in Ag Mem 256 were used, based on 20 years data 1940–1959. Time available is counted from September 1st.

For a summary the following terms are used:

75% length = three quarters
50% length = half
25% length = one quarter
of the years exceeded this duration

Results (using regions of Tech Bull 24 and dry summers excluded)

Region and average annual rainfall	75%	50%	25%
NORTH			
Over 35 in	40	57	66
30–35 in	35	53	74
25–30 in	55	74	104
Below 25 in	62	74	90
MIDLANDS			
Over 30 in	47	58	72
25–30	56	69	87
Below 25 in	64	77	93
EAST			
Below 25 in	80	92	114
SOUTHEAST			
Over 30 in	53	65	85
25–30 in	64	80	99
Below 25 in	75	86	107
SOUTHWEST			
Over 35 in	29	42	55
30–35 in	45	57	70
Below 30 in	47	67	81

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Region and average annual rainfall	75%	50%	25%
WALES			
Over 40 in	30	51	66
Below 40 in	37	54	80

Full distribution is given in the Appendix.

Note: Taking the SMD at the end of August slightly underestimates the frequency values in Ag Mem 597, because it omits the years when August rainfall exceeded transpiration. For example if the end of July SMD was 2.5 in, and end of August 1.5 in, such years are not included in this analysis.

The time available duration does not take into account days when the surface soil would have prevented activity.

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APPENDIX

NORTH Return Date	(a) Over 35 in	(b) 30–35 in	(c) 25–30 in	(d) Below 25 in	Days available for subsoiling
S1					5
S2	2				15
S3	1	5	3		25
O1	1	9	3	2	35
O2	1	3	2		45
O3	4	3	4	3	55
N1	5	5	8	5	66
N2	2	7	9	6	76
N3		1	2	2	86
D1		2	1		96
D2		0	7	2	106
D3		1	5	3	116
Jan 1			2		127

MIDLANDS Return Date	(a) Over 30 in	(b) 25–30 in	(c) Below 25 in
S1			
S2			
S3	3	5	1
O1		4	2
O2	7	4	
O3	8	12	2
N1	6	19	8
N2	6	12	6
N3	1	9	5
D1	1	7	4
D2		4	1
D3	1	5	3
Jan 1		1	
Jan 2			1

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APPENDIX

EAST Return Date	Below 25 in	SOUTHEAST (a) Over 30 in	(b) 25–30 in	(c) Below 25 in
S1				
S2			1	1
S3			1	
O1		2	2	
O2	1	2	1	
O3	1	3	1	
N1	10	5	6	
N2	12	1	4	3
N3	18	3	3	1
D1	10	1	5	
D2	10	2	4	3
D3	11		2	
Jan 1	6			1
Jan 2	4		1	
Jan 3	1			
Feb 1	1			
Feb 2	1			
Feb 3	1			
Never				

SOUTHWEST Return Date	(a) Over 35 in	(b) 30–35 in	(c) Below 30 in	WALES (a) Over 40 in	(b) Below 40 in
S1					
S2	2	1		4	4
S3	4	3	2	7	7
O1	4	4	4	8	5
O2	5	10	4	2	11
O3	3	13	3	10	5
N1	2	10	9	4	8
N2		4	5	7	4
N3	1	3	2	2	6
D1	1	3	4		6
D2		2	1		1
D3		1			1
Jan 1			2		
Jan 2					
Jan 3					

Any comments or suggestions on this paper should be referred to the author.

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